

**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

1-188. (Cancelled)

189. (Currently Amended) ~~The cartridge of claim 187 further comprising A~~  
fluidic sample analysis cartridge for analyzing a particle-containing liquid sample, comprising:

a sample inlet comprising an inlet shut-off interface;

a convoluted sample storage channel in fluidic connection with said  
sample inlet, wherein said storage channel comprises a plurality of particle capture regions;

a resuspension pump interface in fluidic connection with said storage  
channel and positioned downstream of said sample inlet;

a first analysis channel in fluidic connection with said storage channel,  
said first analysis channel comprising a first analysis region;

a first analysis valve interface positioned between said storage channel and  
said first analysis channel; and

a sheath flow assembly in fluidic connection with said first analysis  
channel upstream of said first analysis region.

190. (Previously Presented) The cartridge of claim 189 wherein said sheath  
flow assembly comprises a first and a second sheath fluid channel positioned on either side of,  
and converging with, said first analysis channel.

191. (Previously Presented) The cartridge of claim 190 wherein the width of  
said first analysis channel does not contract within said sheath flow assembly.

192. (Previously Presented) The cartridge of claim 190 wherein said sheath flow assembly further comprises an upper and a lower sheath fluid chamber positioned above and below, and converging with, said first analysis channel.

193. (Previously Presented) The cartridge of claim 192 wherein said sheath flow assembly provides hydrodynamic focusing in both the widthwise and depthwise directions.

194. (Previously Presented) The cartridge of claim 190 wherein said first analysis channel contracts in the widthwise and/or depthwise direction after converging with said first and second sheath flow channels.

195. (Currently Amended) ~~The cartridge of claim 172 further comprising A~~  
fluidic sample analysis cartridge for analyzing a particle-containing liquid sample, comprising:

a sample inlet comprising an inlet shut-off interface;

a convoluted sample storage channel in fluidic connection with said sample inlet, wherein said storage channel comprises a plurality of particle capture regions;

a resuspension pump interface in fluidic connection with said storage channel and positioned downstream of said sample inlet;

a first analysis channel in fluidic connection with said storage channel, said first analysis channel comprising a first analysis region;

a first analysis valve interface positioned between said storage channel and said first analysis channel; and

a reagent inlet in fluid communication with said first analysis channel between said storage channel and said first analysis region.

196. (Previously Presented) The cartridge of claim 195 wherein said reagent inlet comprises a syringe pump interface.

197. (Previously Presented) The cartridge of claim 195 further comprising a reagent storage reservoir in fluid communication with said reagent inlet.

198. (Previously Presented) The cartridge of claim 195 further comprising a mixing channel between said reagent inlet and said first analysis region.

199. (Previously Presented) The cartridge of claim 198 wherein said mixing channel is a spatially periodic channel.

200. (Previously Presented) The cartridge of claim 199 wherein said mixing channel is an isotropic spatially periodic channel.

201-202. (Cancelled)

203. (Currently Amended) ~~The cartridge of claim 202~~ A fluidic sample analysis cartridge for analyzing a particle-containing liquid sample, comprising:

a sample inlet comprising an inlet shut-off interface;

a convoluted sample storage channel in fluidic connection with said sample inlet, wherein said storage channel comprises a plurality of particle capture regions;

a resuspension pump interface in fluidic connection with said storage channel and positioned downstream of said sample inlet;

a first analysis channel in fluidic connection with said storage channel, said first analysis channel comprising a first analysis region; and

a first analysis valve interface positioned between said storage channel and said first analysis channel,

wherein said first sample analysis region comprises a filling status gauge.

204-205. (Cancelled)

206. (Currently Amended) ~~The cartridge of claim 204~~ A fluidic sample analysis cartridge for analyzing a particle-containing liquid sample, comprising:

a sample inlet comprising an inlet shut-off interface;

a convoluted sample storage channel in fluidic connection with said sample inlet, wherein said storage channel comprises a plurality of particle capture regions;

a resuspension pump interface in fluidic connection with said storage channel and positioned downstream of said sample inlet;

a first analysis channel in fluidic connection with said storage channel, said first analysis channel comprising a first analysis region;

a first analysis valve interface positioned between said storage channel and said first analysis channel; and

a waste storage container in fluidic connection with said first analysis channel, wherein said waste storage container comprises an expandable compartment.

207. (Currently Amended) ~~The cartridge of claim 172 further comprising A~~ fluidic sample analysis cartridge for analyzing a particle-containing liquid sample, comprising:

a sample inlet comprising an inlet shut-off interface;

a convoluted sample storage channel in fluidic connection with said sample inlet, wherein said storage channel comprises a plurality of particle capture regions;

a resuspension pump interface in fluidic connection with said storage channel and positioned downstream of said sample inlet;

a first analysis channel in fluidic connection with said storage channel, said first analysis channel comprising a first analysis region;

a first analysis valve interface positioned between said storage channel and said first analysis channel; and

a vent in gaseous communication with said first analysis channel.

208. (Previously Presented) The cartridge of claim 207 wherein said vent is a gas-permeable plug, said plug having reduced permeability when in contact with a liquid.

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209-220. (Cancelled)